REMARKS

Claims 2, 6-8, 11-16 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,616,369 to Williams et al in view of U.S. Patent 6,159,531 to Dang et al.

In the final Office Action, the Examiner relied on Dang as disclosing the steps of executing a low power glow discharge and a high power glow discharge, citing col. 2, lines 11-24. The reason for rejection was that it would have been obvious to utilize in Williams the steps of executing a low power glow discharge and executing a high power glow discharge as said to be taught be Dang in order to provide the proper heat for each of the coating layers.

Applicants traverse, and respectfully disagree with the Examiner's characterization of Dang.

Like Williams, Dang also fails to disclose executing a low power glow discharge to thereby form a first CVD film on the surface of the substrate, and then executing a high power glow discharge (executed in the same plasma treatment chamber, employing the same organometal and executed at the same frequency) to form a second CVD film on the first CVD film as required by independent claim 27. Therefore, the combination of Williams and Dang could never achieve the method of claim 27 because the above-noted limitation of claim 27 is not taught or suggested by any of the applied prior art. This is discussed in detail below.

The Examiner cites Dang, col. 2, lines 11-24 as disclosing a step of generating a low-temperature plasma with a low output and a step of generating a low-temperature plasma with a high output, which, however, is quite incorrect. Rather, Dang discloses general conditions for generating a low-temperature plasma, i.e., generating a low-temperature plasma with a low output (2 to 300 watts) or a high output (500 to 1,000 watts) depending upon the volume of the

chamber. This is not a disclosure film forming (film deposition) by executing a low power glow discharge to form a first CVD film and then executing a high power glow discharge so as to form a second CVD film on the first CVD film.

According to Dang, the surface of the substrate used for medical implant is first cleaned with plasma (i.e., plasma cleaning in oxygen, see Step 16 of Fig. 1), and the bioactive coating is then formed after plasma deposition (Step 17). The plasma treatment is conducted in two steps, namely, plasma cleaning and plasma deposition. However, there is no disclosure, teaching or suggestion of depositing first and second CVD films in two steps of a low power output and a high power output. The plasma cleaning (oxygen plasma, Col. 2, lines 47-99) serves to remove organic matter from the surface of the substrate by decomposition, which is entirely different from plasma deposition.

Dang discloses the plasma deposition in detail at col. 2, line 51 - col. 3, line 28. As understood from the above description, Dang gradually decreases the output for forming the plasma, but does not employ the means of the present invention which effects plasma deposition with a low output, first, and, thereafter, effects plasma deposition with a high output. If the plasma deposition were effected using the means disclosed by Dang and using a reaction gas containing an organometal, flexibility would be impaired in the region of the film formed on the side of the substrate due too high a metal oxide content (pages 11-12 of the specification). Consequently, adhesion would be impaired between the film thus formed and the substrate. In fact, Dang does not at all teach or suggest the use of an organometal compound as the reaction gas.

The cited passage of Dang et al at col. 2, lines 11-24 is reproduced below.

> **More in particular, the method of the present invention as hereinafter described utilizes a plasma chamber (not shown) of the type as described in U.S. Pat. No. 5,643,580 well known to those skilled in the art and thus will not be described in detail. Typically the plasma utilized in the method of the present invention utilizes a "low temperature" or "cold" plasma produced by glow discharge. A low temperature plasma is created in an evacuated chamber refilled with a low pressure gas having a pressure on the order of 0.05 to 5 Torr and with the gas being excited by electrical energy usually in the radio frequency range. A glow discharge is created typically in the range of 2-300 watts for low power and 50-1000 watts for high power depending on the chamber volume.**

As discussed above, there is no description here of executing a low power glow discharge to form a first CVD film and then executing a high power glow discharge to form a second CVD film on the first CVD film as required by clam 27. Rather, Dang et al simply instructs that the glow discharge is carried out at a low power or a high power *depending on the chamber of volume*.

The passage at Dang et al at col. 3, lines 7-19 relating to the deposition Step 17 is reproduced below.

> **The deposition Step 17 can be performed in continuous or pulsed plasma processes. The power to generate plasma can be supplied in pulsed form or can be supplied in graduated or gradient manner, with higher power being supplied initially, followed by the power being reduced or tapered towards the end of the plasma deposition process. For example, higher power or higher power on/off ratios can be utilized at the beginning of the Step 17 to create more bonding sites on the surface 12 which results in stronger adherence between the substrate surface 12 and the deposited layer 18. Power is then tapered off or reduced as for example by reducing the power-on period to obtain a high percentage of functional groups on the surface 12.**

As discussed above, this is not a description of first effecting a plasma deposition with a low power glow discharge, and thereafter effecting the plasma deposition at a high power glow

discharge. Further, the deposition Step 17 where Dang et al gradually decreases the output power for forming the plasma is entirely opposite the sequence of present claim 17 which requires executing a low power glow discharge and then executing a high power glow discharge to form a second CVD film on the first CVD film.

For the above reasons, it is respectfully submitted that the present claims are patentable over Williams et al in view of Dang et al, and withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claims 3-5, 9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams et al in view of Dang et al, further in view of U.S. Patent 4,395,313 to Lindsay et al.

Applicants rely on the response above with respect to the rejection of claims 2, 6-8, 11-16 and 27 over Williams et al in view of Dang et al. Lindsay et al does not disclose the steps of executing a low power glow discharge to form a first CVD film on the surface of the substrate, and then executing a high power glow discharge to form a second CVD film on the first CVD film as required by claim 27, and therefore does not cure the deficiencies of Williams et al and Dang et al.

Moreover, Lindsay et al merely discloses forming a film by *electrodeposition* with a low output power and a high output power, and is irrelevant to the method of the present invention directed to forming a metal oxide film in a plasma deposition process. Namely, the "power output" of Lindsay et al has nothing to do with CVD film formation in a plasma process.

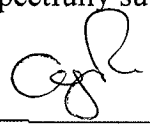
Withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Withdrawal of all rejections and allowance of claims 2-16 and 27 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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